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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,614	09/12/2003	Manabu Serizawa	117111	6115

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EXAMINER
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RODEE, CHRISTOPHER D

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 03/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/660,614

Applicant(s)

SERIZAWA ET AL.

Examiner

Christopher RoDee

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/17/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear in the instant claims how the shape factor is determined. The specification states that the shape factor is SF-1, which is defined as on specification page 44. However, the claims permit the shape factor to be determined by any means or method or formula. The artisan will not be reasonably apprised of the shape factor or the implicit shape of the toner with the claims as presented. See the enclosed citation to Kadokura in US Patent Application Publication 2003/0039913, which shows various ways to determine shape factor that measure different shape characteristics (§ [0015]). The Examiner suggests that the claims be amended to specify the shape factor as the SF-1 shape factor.

Claim 9 is indefinite as presented for the definition of A<sub>3</sub> for formulae (1), (3), (4), and (5). A<sub>3</sub> is defined as an alkylene group. Giving this term its usual and customary definition, an alkylene group has the formula -(CH<sub>2</sub>)-. Such a group defines an incomplete compound in formulae (1), (3), (4), and (5) because the final carbon atom of the alkylene chain would have a free bond. Clarification is required for the claims as currently presented.

### ***Claim Rejections - 35 USC § 103***

Art Unit: 1756

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, and 8-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 10-260601 in view of Takenouchi *et al.* in US Patent 5,273,852, further in view of Carlson in US Patent 2,297,691 or Kadokura *et al.* in US Patent Application Publication 2003/0039913, and further in view of *Handbook of Imaging Materials* to Diamond, pp. 160-162.

The JP reference discloses a method of imaging using a toner having a resin and coloring agent. The toner has a storage elastic modulus of 500 to 1200 dyn/cm<sup>2</sup> (50 to 120 Pa) (Abstract). Exemplified toner T2 is 8.5 microns in diameter and has 20 parts of a magenta pigment master bath as the colorant, 100 parts of a styrene-acrylate binder resin, and 3 parts of charge control agent. This toner is then mixed with silica (16 nm) and titania (21 nm) as external additives (¶¶ [0074] – [0079]). Toner T2 has a storage elastic modulus at 160 °C of 97 Pa (see Table 1). Toner T4 is formed from a similar composition but this toner has a storage elastic modulus at 160 °C of 100 Pa (see Table 1). The toner also contains a polyolefin release agent, in an amount of from 0.5 to 10 weight % (¶¶ [0065]-[0067]).

The toner is used as either a one or two-component developer in a commercially available copying machine (i.e., DC-9028 from Konica). Toner images are formed and fixed on an OHP transparent receiver. The artisan would readily recognize that the apparatus operates by forming an electrostatic latent image, development of the image, followed by transfer of the toner to the transparent receiver. See Diamond, pp. 160-162.

The JP reference does not specify the photoreceptor in the copying machine, but Takenouchi discloses a useful photoreceptor for this copying machine (col. 22, l. 5-8). The photoreceptor has a conductive support, 0.2 micron-thick charge generation layer, and a 20 micron-thick charge transport layer containing a silane polymer and a charge transport material given by the formula (2) (col. 2, l. 36-col. 3, l. 3; col. 9, l. 8-21; col. 10, l. 10+; Figures). This charge transport compound has unsaturated groups. The photoreceptor may also contain an antioxidant to prevent deterioration (col. 20, l. 39-51).

The JP reference does not disclose the shape of the toner, but Carlson teaches that toner with a generally spherical shape is advantageous because it gives a more accurate distribution of powder on the electric charges of the image. The claimed shape factor represents numerically a generally spherically shaped toner noting the discussion on specification pages 44 and 45. Carlson is therefore seen as teaching that toner shape is a result effecting variable and directs the artisan to a spherical shape. Carlson is also seen as suggesting the toner shape claimed because the numerical value claimed is a generally spherical shape.

Kadokura teaches that a shape factor SF-1 of 125 to 140 is useful in image development because this shape gives proper fluidity and sufficient cleaning of the photoreceptor surface (¶ [0031]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the photoreceptor of Takenouchi in the invention of the JP reference because the JP document teaches the use of its toner in a specific imaging apparatus, identified by tradename, and Takenouchi discloses a specific photoreceptor for use in this apparatus. It would also have been obvious to produce the toner of the JP document with either a generally spherical shape, as discussed by Carlson, or with a SF-1 value of 125 to 140, as discussed by

Art Unit: 1756

Kadokura, because each supporting reference teaches the effectiveness of specific shapes within the scope of the instant claims. These shapes have advantages as discussed above. The artisan would have found it obvious to optimize the size of the external additives in order to ensure proper fluidity of the toner composition.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 10-260601 in view of Takenouchi *et al.* in US Patent 5,273,852, further in view of Carlson in US Patent 2,297,691 or Kadokura *et al.* in US Patent Application Publication 2003/0039913 as applied to claims 1-6, and 8-15 above, and further in view of *Handbook of Imaging Materials* to Diamond, pp. 160-162 & 178.

The JP document, Takenouchi, Diamond, Kadokura, and Carlson were described above. The references do not specify the particle size distribution of the toner, but Diamond teaches that a narrow toner particle size distribution is desired. Too broad a distribution will result in dirt in the machine environment as well as reduce copy quality. It is apparent from this discussion that the particle size distribution is a result-affecting variable and that the distribution should be minimized, giving a small numerical value for distribution.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to produce the toner of the JP document with a narrow particle size distribution, which is numerically defined in the instant claims, because Diamond teaches that a broad distribution results in a dirt in the machine environment as well as reduce copy quality.

Claims 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 10-260601 in view of Takenouchi *et al.* in US Patent 5,273,852, further in view of Carlson in US Patent 2,297,691 or Kadokura *et al.* in US Patent Application Publication 2003/0039913, and

Art Unit: 1756

further in view of *Handbook of Imaging Materials* to Diamond, pp. 160-162, as applied to claims 1-6, and 8-15 above, and further in view of Heeks *et al.* in US Patent 6,336,026.

The JP document, Takenouchi, Diamond, Kadokura, and Carlson were described above. The references do not disclose the transfer material, such as when using an intermediate transfer member. However, Heeks teaches an intermediate transfer member having a multilayer construction and a fluorosilicone as the surface layer (col. 6, l. 55-64; col. 12, l. 11-24). The transfer layer can also contain conductive particles to control the conductivity of the surface layer (col. 13, l. 62 – col. 14, l. 29).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use an intermediate transfer layer as discussed in Heeks in the imaging process discussed by the JP document and Diamond because this member gives a high image registration system in color imaging systems, such as used in the JP document, with the specific advantages discussed in the passage spanning columns 5 and 6.

### ***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher RoDee whose telephone number is 571-272-1388. The examiner can normally be reached on most weekdays from 6:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1756

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cdr  
21 March 2005



CHRISTOPHER RODÉE  
PRIMARY EXAMINER